

INDEX

SOVIET PLANT PHYSIOLOGY

Volume 11, Numbers 1-6

L
I
Z
D
E
X

SOVIET PLANT PHYSIOLOGY**Volume 11, Numbers 1-6**(A translation of *Fiziologiya Rastenii*)**A**

Adamovich, A. A. - 631
Agakishiev, D. - 174
Agnistikova, V. N. - 426
Agre, A. L. - 114
Aksanova, V. A. - 51
Akulova, E. A. - 694
Alekseenko, L. N. - 356
Andreeva, I. N. - 68
Andreeva, T. F. - 810
Anikiev, V. V. - 134
Anisimov, A. A. - 55, 674
Aseeva, K. B. - 145
Ashur, N. I. - 315

B

Babushkina, L. N. - 204
Barskaya, E. I. - 900
Beletskaya, E. K. - 612
Belikov, I. F. - 508
Bereznegovskaya, L. N. - 925
Biglov, T. T. - 407
Bogatkina, V. F. - 37
Bogdarina, A. A. - 626
Bolyakina, Yu. P. - 710
Borovikova, N. V. - 25
Breslavets, L. P. - 720
Britikov, E. A. - 394
Brovtyna, V. L. - 333
Bryukvin, V. G. - 953
Bundel', A. A. - 25
Burkina, Z. D. - 116
Bykov, O. D. - 434
Bystrov, B. A. - 879

C

Chailakhyan, M. Kh. - 475, 857
Chel'tsova, L. P. - 102
Chen In - 699
Chuchkin, V. G. - 953
Chuvashina, N. P. - 280

D

Dadabaev, A. D. - 689
Dam Fuien - 792

Devyatkina, G. A. - 419
Dmitrieva, N. N. - 164
Dubovaya, L. P. - 419
Dubovskaya, L. S. - 674
Dobryakov, L. A. - 674

E

Ermakov, I. P. - 776
Evstigneeva, Z. G. - 145, 842

F

Filippenko, I. A. - 516
Filippov, L. A. - 446
Fomenko, B. S. - 538
Fridman, I. R. - 790

G

Gavrisheva, I. F. - 874
Genkel', P. A. - 309, 457, 570
Gileva, É. A. - 497
Godnev, T. N. - 327, 818
Gordon, L. Kh. - 84, 390
Gorid'ko, I. V. - 786
Gorodnii, N. G. - 922
Goryunov, N. S. - 934
Grechushnikov, A. I. - 530
Grineva, G. M. - 376
Grishina, G. S. - 4
Grodzinskii, A. M. - 302

I

Igoshina, T. I. - 153
Iliev, R. L. - 79
Isakov, N. A. - 790
Ivanov, N. P. - 546
Ivanov, V. P. - 538
Ivanova, N. S. - 116

K

Kakhanovich, L. V. - 795
Kakhidze, N. T. - 776
Kalishevich, S. V. - 178
Kan'shina, M. V. - 783
Kapitanchuk, V. A. - 799
Karnikova, L. D. - 592

Karymov, A. - 720
Kats, K. M. - 381
Kazantsev, E. N. - 503
Kefeli, V. I. - 419, 724
Kekukh, A. M. - 472
Kharchenko, L. N. - 512
Khaskin, I. G. - 150
Khavkin, É. E. - 732
Khazanov, V. S. - 694
Khodorenko, L. A. - 795
Kholodova, V. P. - 884
Kiryukhin, V. P. - 530
Klyachko, N. L. - 710
Klyachko-Gurvich, G. L. - 834
Kodaneva, R. P. - 371
Kolesnichenko, M. V. - 773
Kolesnikov, P. A. - 440
Kolpikov, D. I. - 624
Koreneva, V. M. - 419
Koretskaya, T. F. - 74
Korozheva, G. F. - 810
Kositsyn, A. V. - 153
Kostetskii, E. Ya. - 508
Kretovich, V. L. - 25, 145, 842
Krupnikova, T. A. - 164
Kruzhilin, A. S. - 235, 480, 870
Kryukova, L. M. - 720
Kudryavtsev, V. A. - 349
Kulaeva, O. N. - 710
Kursanov, A. L. - 475, 487, 680, 710
Kushnirenko, M. D. - 412
Kutacek, M. - 736
Kutyurin, V. M. - 4, 822
Kuzina, G. V. - 592
Kuznetsov, E. D. - 526, 702

L

Lapina, L. P. - 575
Lapshina, A. N. - 61
Lebedev, G. V. - 640, 953
Lebedeva, L. A. - 761
Lekareva, T. A. - 426
Likholtat, T. V. - 915
Lizandr, A. A. - 333

Losev, A. P. - 942
Lozhkina, N. N. - 546
Lozhnikova, V. N. - 857
Luchko, A. S. - 46
Lupova, L. M. - 426

M

Madis, V. I. - 243
Martynova, M. F. - 356
Marty'anova, K. L. - 457
Matveeva, N. M. - 900
Mel'nikov, V. K. - 280
Mikhaelis, Z. - 555
Mikhailovskaya, O. B. - 629
Minina, E. G. - 248
Mishustina, P. S. - 612
Molotkovskii, Yu. G. - 254
Mosolov, I. V. - 61
Muromtsev, G. S. - 426
Musatova, N. A. - 394
Myaetalu, Kh. I. - 9

N

Nazarov, N. M. - 822
Nazirov, N. N. - 277
Nechaeva, E. P. - 587
Nekrasova, T. V. - 107
Nichiporovich, A. A. - 15, 805
Nikolaeva, M. K. - 181

O

Obreimov, N. V. - 637
Obrycheva, N. V. - 469, 634
Odumanova-Dunacva, G. A. - 467, 626
Ogolcvets, I. V. - 754
Ogryzkova, N. M. - 934
Okancenko, A. S. - 958
Ollykainen, A. M. - 927
Oplistilova, K. - 736
Orlovskii, N. I. - 958
Osipova, O. P. - 181, 315
Ovcharov, K. E. - 306

P

Palladina, T. A. - 270
Pashchenko, V. N. - 865
Pavlov, A. M. - 294
Pavlova, A. P. - 879
Pavlova, L. I. - 516
Petinov, N. S. - 559
Petrosyan, G. P. - 580
Petrov, K. P. - 449
Pontovich, V. É. - 739
Popova, É. A. - 710
Popova, O. N. - 371

Porokhnevich, N. V. - 178
Portyanko, V. F. - 170
Porutskii, G. V. - 46, 299
Potapov, N. G. - 649
Pristupa, N. A. - 31
Prokof'ev, A. A. - 381
Pronina, N. D. - 570
Protsenko, D. F. - 612
Prusakova, L. D. - 908

R

Rafikova, F. M. - 761
Raiko, A. P. - 114
Raspevin, V. A. - 453
Rastorgueva, L. I. - 266, 607
Rogacheva, A. Ya. - 566
Rubin, B. A. - 51, 645, 655
Rubtsova, M. S. - 401
Rudavskii, V. P. - 150
Rzhevskaya, F. Yu. - 94

S

Saakov, V. S. - 666
Saakyan, R. G. - 580
Sabinina, E. T. - 953
Safonov, V. I. - 127, 950
Safonova, M. P. - 127, 950
Salamatova, T. S. - 649
Samorodova-Bianki, G. V. - 462
Samygin, G. A. - 260, 900
Sanadze, G. A. - 42

Sarapuu, L. P. - 520, 724
Satarova, N. A. - 136
Sedenko, D. M. - 222
Semenenko, V. E. - 319
Semenko, B. E. - 186
Semikhatova, O. A. - 218
Semin, V. S. - 243
Serebrenikov, V. S. - 530
Shabel'skaya, É. F. - 327, 818
Shaidorov, Yu. I. - 288
Shcherbakov, B. I. - 274
Shevyakova, N. I. - 745
Shishchenko, S. V. - 851
Shishov, D. N. - 694

Shkol'nik, M. Ya. - 164, 666
Shul'gin, I. A. - 339
Shutyaev, A. M. - 768
Shvedskaya, Z. M. - 235, 870
Simongulyan, N. G. - 689
Siyanova, N. S. - 367
Smirnov, A. M. - 294
Sobolev, A. M. - 89
Sokolova, S. V. - 487, 680
Soldatenkov, S. V. - 434
Solov'ev, A. K. - 640

Solov'ev, V. A. - 471
Spektorova, L. V. - 116
Startseva, A. V. - 617
Stepanov, S. I. - 929
Strogonov, B. P. - 575, 745
Sutokskaya, I. V. - 248
Sveshnikova, I. N. - 710
Sytinskii, I. A. - 792

T

Taha, Mohamed Sameh - 361
Tarchevskii, I. A. - 198
Tauts, M. I. - 210
Tektonidi, I. P. - 530
Timofeeva, A. A. - 939
Tomova, N. G. - 842
Trunova, T. I. - 136
Tsel'niker, Yu. L. - 694
Tseluiko, N. A. - 779
Tsybul'skaya, G. N. - 150
Turetskaya, R. Kh. - 724
Turkina, M. V. - 487, 680
Tumanov, N. N. - 592

U

Udovenko, G. V. - 546
Ulubekova, M. V. - 4, 822
Urbanovich, T. A. - 546
Urmantsev, Yu. A. - 559

V

Vainshel'boim, A. I. - 284
Varlamov, V. N. - 260
Vartapetyan, B. B. - 659
Vasil'eva, I. M. - 761
Vasil'eva, N. G. - 118
Vavilov, P. P. - 371
Veretennikov, A. V. - 231
Verzilin, N. N. - 929
Vladimirova, M. G. - 526, 702
Vorob'eva, I. P. - 710
Voskresenskaya, N. P. - 4
Voznesenskii, V. L. - 37, 830
Vyval'ko, I. G. - 922

Y

Yablonskii, E. A. - 122, 602
Yakobson, G. A. - 538
Yavorskii, A. G. - 46
Yudina, O. S. - 218

Z

Zadorozhni, I. K. - 4
Zaitseva, M. G. - 222
Zak, F. G. - 15, 805

Zakrzhevskii, D. A. - 927
Zeleneva, I. V. - 655
Zemlyanukhin, A. A. - 893

Zenchenko, V. A. - 228
Zhestkova, I. M. - 254
Zholkevich, V. N. - 74, 566

Zhukov, M. S. - 158
Zoré, S. V. - 440
Zubova, L. S. - 457

SOVIET PLANT PHYSIOLOGY

PROCEEDINGS of the
ACADEMY OF SCIENCES
of the USSR

A translation of (FIZIOLOGIYA RASTENII)

A publication of the Academy of Sciences, USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 1

January-February, 1964

CONTENTS

	P A G E
	ENG. RUSS.
The Problems of Plant Physiology in the Light of the Decisions of the December Plenary Meeting of the Central Committee of the Communist Party of the Soviet Union	1 3
Effect of the Spectral Composition of Light on Fractionation of Oxygen Isotopes Absorbed by Hydrophytes—V. M. Kutyurin, N. P. Voskresenskaya, M. V. Ulubekova, G. S. Grishina, and I. K. Zadorozhnyi	4 7
On the Changes in the Qualitative Course of Photosynthesis in Apple Leaves During Vegetation —Kh. I. Myaetalu	9 13
Formation of Amino Acids During Photosynthesis: Identification and Degradation of Glycine, Alanine, and Serine—E. G. Zak and A. A. Nichiporovich	15 20
Incorporation of N ¹⁵ -Hydroxylamine into the Proteins of Wheat Shoots—A. A. Bunde ¹ , V. L. Kretovich, and N. V. Borovikova	25 31
Redistribution of Radioactive Assimilates in the Leaf Tissues of Cereals—N. A. Pristupa	31 38
Utilization of the Products of Photosynthesis in Respiration—L. A. Filippova, V. L. Voznesenskii, and V. F. Bogatkina	37 43
On the Conditions of Evolution of the Diene C ₅ H ₈ (Isoprene) from Leaves—G. A. Sanadze	42 49
Gaseous Excretions and Amino Acid Composition of Green Peas—A. S. Luchko, G. V. Porutskii, and A. G. Yavorskii	46 53
Influence of the Toxin of <i>Botrytis cinerea</i> and Its Polysaccharide Fraction on Oxidative Phosphorylation in Cabbage Tissues—B. A. Rubin and V. A. Aksanova	51 59
The Effect of Superphosphate on the Translocation Assimilates in Potato—A. A. Anisimov	55 64
Amino Acid Composition of the Bleeding Sap and Leaves of Corn Under Various Nitrogen- and Phosphorus-Nitrition Conditions—I. V. Mosolov and A. N. Lapshina	61 71
The Absorption of Mineral Substances by Plants Subjected to a Drying Wind—I. N. Andreeva	68 79
Influence of Dehydration on the Ability of Tissues of <i>Vicia faba</i> to Oxidize Glutamic Acid —T. F. Koretskaya and V. N. Zholkevich	74 87
The Utilization of Suction Tension in Leaves to Determine the Capacity of Plants to Absorb Soil Moisture—R. L. Iliev	79 93
On the Water Régime of Wheat Roots—L. Kh. Gordon	84 100

Annual Subscription: \$160

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

	PAGE	ENG.	RUSS.
Formation and Accumulation of Phytin in Seeds—A. M. Sobolev	89	106	
The Effect of the Period of Storage on the Content of Nucleic Acids in the Tissues of Cotton Seed —F. Yu. Rzhevskaya.	94	112	
On the Shifting of the Isoelectric Points of the Protoplasm, Nucleus and Nucleolus in the Cells of the Apical Cone of Timothy—L. P. Chel'tsova	102	120	
The Culture of Isolated Buds of Fruit Trees—T. V. Nekrasova	107	127	
BRIEF COMMUNICATIONS			
Accumulation of Microquantities of Strontium by Green and Blue-Green Algae—A. L. Agre and A. P. Raiko.	114	135	
Reversible Bleaching of Chlorella Induced by Certain Mechanical Forces—N. S. Ivanova and L. V. Spektorova	116	137	
Uptake of Heavy Oxygen Water in <u>Vicia faba</u> Leaves and Its Translocation in Plants —N. G. Vasil'eva and Z. S. Burkina	118	139	
METHODS			
Determination of Colloid-Bound Water in Plant Tissue Homogenates by a Nonindicator Refractometric Method—E. A. Yablonskii	122	142	
Electrophoresis of Plant Proteins in a Synthetic (Polyacrylamide) Gel—V. I. Safonov and M. P. Safonova	127	147	
BOOK REVIEWS			
P. A. Genkel. Plant Physiology and Elements of Microbiology—Reviewed by V. V. Anikiev . . .	134	154	
CHRONICLE			
International Symposium on Cytoecology—N. A. Satarova and T. I. Trunova	136	156	

FIZIOLOGIYA RASTENII
EDITORIAL BOARD

P. A. Genkel'
(Assistant Editor)
A. L. Kursanov
(Editor-in-Chief)
L. A. Nezgovorov
(Secretary)
A. A. Nichiporovich
Yu V. Rakitin
B. A. Rubin
I. I. Tumanov

SOVIET PLANT PHYSIOLOGY

A translation of FIZIOLOGIYA RASTENII
a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 2

March-April, 1964

CONTENTS

	P A G E
	ENG. RUSS.
Participation of Plant Physiologists in the Implementation of the Decisions of the February Plenary Meeting of the Central Committee of the Communist Party of the Soviet Union	141 161
Assimilation of Ammonia by Plants with Different Metabolisms—V. L. Kretovich, Z. G. Evstigneeva, and K. B. Aseeva	145 165
Herbicidal Activity of Certain Aromatic Derivatives of Trichloracetamide —G. N. Tsybul'skaya, V. P. Rudavskii, and I. G. Khaskin	150 171
Intracellular Distribution of Zinc in Tomato Leaves—A. V. Kositsyn and T. I. Igoshina	153 175
A Comparative Study of the Role of Potassium and Sodium in the Life of Plants —M. S. Zhukov	158 181
Influence of Boron Deficiency on Some Aspects of Auxin Metabolism in the Sunflower and Corn —M. Ya. Shkol'nik, T. A. Krupnikova, and N. N. Dmitrieva	164 188
The Stimulating Role of the Root Apex in Absorption of Nutrients—V. F. Portyanko	170 195
The Effect of Gibberellin on Cotton under Conditions of Salinity—D. Agakishiev	174 201
The Effect of Gibberellic Acid on the Anatomic Structure of Hemp Stems—S. V. Kalishevich and N. V. Porokhnevich	178 206
Incorporation of C ¹⁴ into Various Leaf Proteins during Photosynthesis—O. P. Osipova and M. K. Nikolaeva	181 210
Study of the Mechanism of the Processes Governing CO ₂ Absorption Kinetics at the Beginning of the Induction Period of Photosynthesis—B. E. Semenko	186 216
Influence of Temperature on Photosynthetic Carbon Metabolism—I. A. Tarchevskii	198 232
High Rates of Dark Absorption of Carbon Dioxide by Tomato Leaves—L. N. Babushkin	204 240
A Study of the Effect of the Products of the Vital Activity of Chlorella on its Growth under Intense Cultivation Conditions—M. I. Tauts	210 247
Role of the Pentose Phosphate Pathway of Glucose Oxidation in the Respiration of Plant Leaves Under Various Temperature Conditions—O. A. Semikhatova and O. S. Yudina	218 257
Investigation of Cyanide-Resistant and Nonresistant Respiration in Wheat—M. G. Zaitseva and D. M. Sedenko	222 262
Cytochrome Oxidase and Peroxidase Activity in the Embryos of Seeds of Northern Origin —V. A. Zenchenko	228 270

Annual Subscription: \$160

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

P A G E	ENG. RUSS.
---------	--------------

The Effect of Excess Soil Moisture on Transpiration Capacity of Woody Plants —A. V. Veretennikov	231	274
Characteristics of the Oxidative Metabolism and Amino Acid Formation in Cabbage Buds during Vernalization—Z. M. Shvedskaya and A. S. Kruzhilin	235	279
On the Dormant Period in Plants—V. S. Semin and V. I. Madis	243	287
The Oxidation Level of Mycelium and Conidium in Connection with Sexualization of <i>Phytophthora infestans</i> De Bary—E. G. Minina and I. V. Sutokskaya	248	293
Mechanism of the Protective Action of Sugars at High Temperatures—Yu. G. Molotkovskii and I. M. Zhestkova	254	301
On the Conditions Favorable to the Survival of Germinating Seeds after Freezing —G. A. Samygin and V. N. Varlamov	260	308
Aftereffect of Low Temperature of the Rhizosphere on Accumulation of Green and Yellow Pigments in Leaves of Certain Plants—L. I. Rastorgueva	266	316
BRIEF COMMUNICATIONS		
The Effect of Gibberellin on the Sprouting of Potato Tubers Treated with Maleic Hydrazide and their Auxin Content—T. A. Palladina	270	321
On the Nonosmotic Absorption of Water by Living Plant Cells—B. I. Shcherbakov	274	325
The Effect of Ionizing Radiation on the Rates of Photosynthesis and Nutrition in Cotton Varieties of Differing Earliness—N. N. Nazirov	279	328
Physiological and Biochemical Characteristics of Sterile Pollen of Distant Hybrids of Fruits and Berry Plants—N. P. Chuvashina and V. K. Mel'nikov	280	330
Testing Magnesium Chlorate as a Defoliant of Fruit-tree Saplings under Moldavian Conditions—L. A. Filippov and A. I. Vainshel'boim	284	334
METHODS		
A Unit for Growing Plants by the Air Culture Method—Yu. I. Shaidorov	288	340
Cultivation of Corn Embryos without Scutella and from Immature Seeds under Sterile Conditions—A. M. Smirnov and A. M. Pavlov	294	347
BOOK REVIEWS		
Polarity in Plant Development—G. V. Porutskii	299	352
EVENTS		
A Report on the Work of the International Symposium on the Physiology, Ecology and Biochemistry of Seed Germination in Greifswald—A. M. Grodzinskii	302	355
Scientific Meeting on the Physiology and Biochemistry of Seeds—K. E. Ovcharov	306	359
In Memory of Lev Samoilovich Litvinov—P. A. Genkel	309	362

FIZIOLOGIYA RASTENII
EDITORIAL BOARD

P. A. Henkel'
(Assistant Editor)

A. L. Kursanov
(Editor-in-Chief)

L. A. Nezgovorov
(Secretary)

A. A. Nichiporovich

Yu V. Rakitin

B. A. Rubin

I. I. Tumanov

SOVIET
PLANT
PHYSIOLOGY

A translation of (FIZIOLOGIYA RASTENII)

A publication of the Academy of Sciences, USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 3

May-June, 1964

CONTENTS

P A G E
ENG. | RUSS.

The Effect of Light Intensity of Photostability and on the Function of the Photosynthetic Apparatus of Plants—O. P. Osipova and N. I. Ashur	315	369
Characteristics of Carbon Dioxide Gas Exchange in the Transition States of Photosynthesis upon Changing from Light to Darkness. Light-Induced Evolution of CO ₂ —V. E. Semenenko	319	375
Daily Fluctuations in the Chlorophyll and Carotinoid Content of the Leaves of Certain Plants—T. N. Godnev and É. F. Shabel'skaya	327	385
The Physiological Role of the Caluine Leaves of Rice in the Formation and Maturation of Grain—A. A. Lizandr and V. L. Brovtyna	333	391
On the Effect of Visual and Infrared Radiation on the Growth and Development of Radish—I. A. Shul'gin	339	398
The Effect of the Intensity of Light on the Accumulation of Dry Matter and Carbohydrate Metabolism in Tomatoes—V. A. Kudryavtsev	349	409
Some Features of the Formation and Productivity of the Assimilation Apparatus in Meadow Grass—L. N. Alekseenko and M. F. Martynova	356	417
Effect of Light on the Growth and Nitrogen Fixation of Certain Blue-Green Algae—Mohamed Sameh Taha	361	424
Influence of Ammonia on Photosynthesis. II. Distribution of C ¹⁴ among Various Compounds—N. S. Siyanova	367	432
Distribution in Plants of Radium Absorbed from the Soil—O. N. Popova, R. P. Kodaneva, and P. P. Vavilov	371	436
Absorption of Water by the Roots of Plants Treated with Chloramphenicol—G. M. Grineva	376	442
Interrelationship between the Transpiration of Leaves and Fruits—A. A. Prokof'ev and K. M. Kats	381	448
Dependence of the State of Water in Wheat Roots on Their Nitrogen Metabolism—L. Kh. Gordon	390	457
Accumulation of Free Proline in Pollen—E. A. Britikov and N. A. Musatova	394	464
Physiological Characteristics of Maternal and Paternal Maize Lines, Yielding Heterotic Hybrids on Crossing—M. S. Rubtsova	401	473
On the Uptake of Phosphorus (P ³²) by Winter Plants during the Process of Hardening Them to Low Temperatures—T. T. Biglov	407	480

Annual Subscription: \$160

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

	P A G E	ENG. RUSS.
Water Metabolism and the Degree of Drought Resistance of Some Fruit Species —M. D. Kushnirenko	412	487
On the Rhythmic Nature of Growth—V. I. Kefeli, G. A. Devyatkin, V. M. Koreneva, and L. P. Dubovaya	419	496
The Composition of Preparations of Gibberellic Acid of Various Origins—G. S. Muromtsev, V. N. Agnistikova, L. M. Lupova, and T. A. Lekareva	426	506
Formation and Transformations of Acids of Primary Sugar Oxidation in Plants —S. V. Soldatenkov and O. D. Bykov	434	515
Anthocyanins and Flavones during Oxidation of Ascorbic Acid in Plants (on the relationship between the Indicated Substances and the Cold Resistance of Plants) —P. A. Kolesnikov and S. V. Zoré	440	522
BRIEF COMMUNICATIONS		
Development of Drought Resistance in Growing Apple Leaves in Response to Environmental Conditions—L. A. Filippov	446	529
Determination of the Effect of Dicarboxylic Acids and Inhibitors on the Suction Power of Plants—K. P. Petrov	449	531
Activity of Catalase and Peroxidase in Plants Treated with Gibberellin—V. A. Raspevin.	453	534
PRACTICAL APPLICATIONS		
Production Experiments on the Presowing Hardening of Plants Against Drought—P. A. Genkel', K. L. Mart'yanova, and L. S. Zubova	457	538
METHODS		
Paper Chromatography of Anthocyanins and Flavonoids—G. V. Samorodova-Bianki	462	544
Simplified Method of Paper Chromatography of Hexachlorocyclohexane from Plants —G. A. Odumanova-Dunaeva	467	549
Determination of the Number of Cells by the Brown Method—N. V. Obrucheva	469	551
BOOK REVIEWS		
Physiology of Adaption of Cultivated Plants to Soil Salinization—V. A. Solov'ev	471	553
Cold Resistance of Maize—A. M. Kekukh	472	554
EVENTS		
A Visit to Plant Physiologists in Yugoslavia—A. L. Kursanov and M. Kh. Chailakhyan	475	557
The International Symposium on the Biology of Wheat in Sweden—A. S. Kruzhilin	480	562
The 70th Birthday of Academician A. I. Oparin	483	565

FIZIOLOGIYA RASTENII
EDITORIAL BOARD

P. A. Henkel'
(Assistant Editor)
A. L. Kursanov
(Editor-in-Chief)
L. A. Nezgovorov
(Secretary)
A. A. Nichiporovich
Yu V. Rakitin
B. A. Rubin
I. I. Tumanov

SOVIET
PLANT
PHYSIOLOGY

A translation of FIZIOLOGIYA RASTENII
A publication of the Academy of Sciences, USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 4

July-August, 1964

CONTENTS

	P A G E
	ENG. RUSS.
Transformation of Sugars during their Penetration into Plant Cells—A. L. Kursanov, M. V. Turkina, and S. V. Sokolova	487 569
Dynamics of the Accumulation of Chemical Elements by the Alga <u>Cladophora fracta</u> and the Dependence of the Accumulation on the Concentration of the Elements in Solution—É. A. Gileva	497 581
Variation in Rates of Protoplasmic Streaming and Chloroplast Movement in Elodea Cells in the Course of a Year—E. N. Kazantsev	503 587
The Distribution of Assimilates in Sugar Beet during the Growth Period—I. F. Belikov and E. Ya. Kostetskii	508 594
Biosynthesis of Essential Oil in Indian Mustard—L. N. Kharchenko	512 599
The Effect of Increased Doses of a 2,4-D Preparation on the Yield of Spring Wheat —I. A. Filippenko and L. I. Pavlova	516 603
Phloridzin As a β -Inhibitor and the Seasonal Dynamics of its Metabolic Products in Apple Shoots—L. Sarapuu	520 607
Iron As a Factor Limiting the Growth of Chlorella on Tamiya Medium—E. D. Kuznetsov and M. G. Vladimirova	526 615
Some Physiological and Biochemical Changes in Potato As a Result of Tuber Treatment with Gibberellin—A. I. Grechushnikov, V. P. Kiryukhin, V. S. Serebrenikov and I. P. Tektonidi	530 620
The Effect of Varying Soil Moisture on the Exchange of Root Secretions—V. P. Ivanov, G. A. Yakobson and B. S. Fomenko	538 630
Absorption of Dissolved Potassium As a Function of Nutritive-Mixture Composition —G. V. Udrovchenko, N. P. Ivanov, N. N. Lozhkina, and T. A. Urbanovich	546 638
Transpiration of Spring Wheat during Various Developmental Stages As a Function of Nitrogen and Potassium Nutrition—Z. Mikhaelis	555 649
On the Chemical Diagnosis of Lodging Resistance of Wheat-Couch Grass Hybrids —N. S. Petinov and Yu. A. Urmantsev	559 654
Influence of 2,4-Dinitrophenol on the Oxygen Consumption of Wilting Plants —V. N. Zholkevich and A. Ya. Rogacheva	566 662
Capacity of Resting Plant Cells to Withstand Dehydration—P. A. Genkel' and N. D. Pronina ..	570 667

Annual Subscription: \$160

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

	P A G E	
	E N G. R U S S.	
A Possible Method for Separately Studying the Toxic and Osmotic Action of Salts on Plants —B. P. Strogonov and L. P. Lapina	575 674	
On the Influence of Soil Salinization on the Content of Nucleic Acids and Nitrogenous Substances in Grape Leaves—R. G. Saakyan and G. P. Petrosyan	580 681	
Differences in the Nucleotide Composition of Plants Under the Action of Various External Conditions—E. P. Nechaeva	587 689	
Dormancy and Winter Hardiness in White Birch and White Acacia—N. N. Tumanov, G. V. Kuzina, and L. D. Karnikova	592 695	
Influence of Winter Thaw and Artificial Warming on the Oligosaccharide Content in One-Year Shoots of Almond, Apricot, and Peach Trees—E. A. Yablonskii	602 708	
Aftereffect of Cooling of the Root System on Protein Synthesis in Leaves—L. I. Rastorgueva ..	607 714	
On Some Characteristics of Heterotic Maize Plants in Relation to Winter Hardiness —D. F. Protsenko, P. S. Mishustina and E. K. Beletskaya	612 720	
The Transmission of Changes in Some Physiological and Biochemical Characteristics to the Progeny of Spring Wheat—A. V. Startseva	617 726	
BRIEF COMMUNICATIONS		
Observations on Active Non-Stomatal Gas and Water Exchange in Higher Plants —D. I. Kolpikov	624 735	
Patterns of Penetration of Chloroorganic Insecticides into Plants—A. A. Bogdarina and G. A. Odumanova-Dunaeva	626 737	
Changes in Respiration of Maize Infected with Corn Smut—O. B. Mikhalevskaya	629 740	
PRACTICAL APPLICATIONS		
Increasing The Drought Resistance of a Variety of Spring Wheat—A. A. Adamovich	631 743	
METHODS		
Determination of Rates of Division and Elongation of Root Cells—N. V. Obrucheva	634 746	
Derivation of Formulas for Rate of Cell Division and of Transition to the Elongation Phase —N. V. Obreimov	637 749	
A Device for Measuring Rate of Water Absorption by Plants—G. V. Lebedev and A. K. Solov'ev	640 752	
The 70th Birthday of Arkadii Semenovich Okanenko—E. A. Rubin	645 757	

FIZIOLOGIYA RASTENII
EDITORIAL BOARD

P. A. Genkel'
(Assistant Editor)
A. L. Kursanov
(Editor-in-Chief)
L. A. Nezgovorov
(Secretary)
A. A. Nichiporovich
Yu V. Rakitin
B. A. Rubin
I. I. Tumanov

SOVIET PLANT PHYSIOLOGY

*A translation of FIZIOLOGIYA RASTENII
a publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 5

September-October, 1964

CONTENTS

	P A G E
	ENG. RUSS.
The Influence of Some Inhibitors on Respiration in the Root Growth Zones in Lupine —N. G. Potapov and T. S. Salamatova	649 761
On the Action of Certain Inhibitors on Respiration in Cucumber Plants Infected by Cucumber Mosaic Virus—B. A. Rubin and I. V. Zeleneva	655 769
Polarographic Investigation of Oxygen Transport in Plants—B. B. Vartapetyan	659 774
Influence of Microelements on Photosynthesis Rate and Assimilate Translocation —M. Ya. Shkol'nik and V. S. Saakov	666 783
Effect of Nitrogen-Phosphorus Nutrition Conditions on Assimilate C ¹⁴ -Incorporation and Translocation in Wheat—A. A. Anisimov, I. S. Dubovskaya, and L. A. Dobryakov.	674 793
Competition of Sugars Penetrating Cells—M. V. Turkina, A. L. Kursanov, and S. V. Sokolova	680 800
The Efficiency of the Leaves in Different Cotton Varieties and the Yields —A. D. Dadabaev and N. G. Simongulyan	689 812
Light Transmission Through a Forest Canopy Depending on the Incident Radiation and Density of the Tree Crowns—E. A. Akulova, V. S. Khazanov, Yu. L. Tsel'niker, and D. N. Shishov	694 818
Effect of the Spectral Composition of Light on the Absorption of Mineral Nutrients by Plant Roots—Chen In	699 824
Dynamics of Changes in Medium Nitrogen and Phosphorus Contents in Intensive Chlorella Cultivation Under Various Conditions—M. G. Vladimirova and E. D. Kuznetsov	702 827
Restoration of Cellular Structures and Metabolism in Yellow Leaves Under the Action of 6-Benzylaminopurine—A. L. Kursanov, O. N. Kulaeva, I. N. Sveshnikova, É. A. Popova, Yu. P. Bolyakina, N. L. Klyachko, and I. P. Vorob'eva	710 838
Changes in the Organelles of Plant Cells Under the Influence of Extracts of Irradiated Potato Tubers—L. P. Breslavets, L. M. Kryukova, and A. Karymov	720 848
Identification of Physiologically Active Indole and Phenol Plant Growth Regulators —V. I. Kefeli, R. Kh. Turetskaya, and L. P. Sarapuu	724 853

Annual Subscription: \$125

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

	PAGE	ENG. RUSS.
Age Variations of the Free Amino Acids and Accumulation of Gamma-Aminobutyric Acid in the Leaves of Leguminous Plants—É. E. Khavkin	732	862
Distribution of Glucobrassicine, a Precursor of Indolylacetonitrile, Ascorbigen, and Thiocyanate Ions in Plants of the Family Brassicaceae—M. Kutacek and K. Oplistilova	736	867
Acetate and Amino Acid Synthesis in the Oil Poppy Fruit—V. É. Pontovich	739	871
Uptake and Distribution of S ³⁵ in Horse Bean Plants Under Conditions of Salinization—N. I. Shevyakova and B. P. Strogonov	745	879
Changes in the Carbohydrate Complex in the Bark of Trees Under the Influence of Negative Temperatures—I. V. Ogolevets	754	889
Some Inter-Relationships between Water, Carbohydrate and Nitrogen Metabolism in Winter Wheat in Relation to the Problem of Frost Resistance—I. M. Vasil'eva, L. A. Lebedeva, and F. M. Rafikova	761	897
Transpiration Characteristics of Climatic Types of English Oak (<i>Quercus robur</i>)—A. M. Shutyaev	768	906
BRIEF COMMUNICATIONS		
On the Sensitivity of the Photosynthetic Apparatus to the Action of Acetaldehyde in Oak Trees of Various Ages—M. V. Kolesnichenko	773	912
Reaction of Elodea Cells to the Influence of Gibberellic Acid—N. T. Kakhidze and I. P. Ermakov	776	914
On the Optimal Time for Removing the Apical Buds of Apple Trees for Increasing the Yield—N. A. Tseluiko	779	916
Correlation between the Free Amino Acid Content in the Pollen and Pistils of Cherry Plants and the Winter Resistance of the Flower Buds—M. V. Kan'shina	783	920
PRACTICAL APPLICATIONS		
The Effect of Cobalt on the Yield and Quality of Potato Tubers—I. V. Gorid'ko	786	922
METHODS		
A Vegetation Chamber with Electrical Illumination and Low Positive Temperatures—I. R. Fridman and N. A. Isakov	790	927
Quantitative Determination of Organic Acids in Sweet Potato Tubers—Dam Fuien and I. A. Sytinskii	792	930
Method of Sampling and Converting Chlorophyll Content—L. V. Kakhanovich and L. A. Khodorensko	795	933
EVENTS		
Conference on Photosynthesis—V. A. Kapitanchuk	799	937
Seventieth Birthday of Ivan Ivanovich Tumanov, Corresponding Member of the USSR Academy of Sciences	800	938

FIZIOLOGIYA RASTENII
EDITORIAL BOARD

P. A. Genkel'
(*Assistant Editor*)
A. L. Kursanov
(*Editor-in-Chief*)
L. A. Nezgovorov
(*Secretary*)
A. A. Nichiporovich
Yu V. Rakitin
B. A. Rubin
I. I. Tumanov

SOVIET PLANT PHYSIOLOGY

A translation of FIZIOLOGIYA RASTENII
a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 11, Number 6

November-December, 1964

CONTENTS

	P A G E
	ENG. RUSS.
The Pathways of Amino Acid Synthesis During Photosynthesis—E. G. Zak and A. A. Nichiporovich	805 945
Influence of the Spectral Composition of Light and Its Intensity on the Formation of Amino Acids in Leaves—T. F. Andreeva and G. F. Korozheva	810 951
Stimulation of Chlorophyll and Carotinoid Accumulation in Barley Shoots During Short-Term Cooling—T. N. Godnev and É. F. Shabel'skaya	818 961
The Influence of Light and Oxygen on Photosynthesis and Respiration in Aquatic Plants —V. M. Kutyurin, M. V. Ulubekova, and N. M. Nazarov	822 965
Investigation of the Carbon Dioxide Gas Exchange Curves of Plants in the Region of Low CO ₂ Concentrations—V. L. Voznesenskii	830 974
Directed Biosynthesis of Carbohydrates in Chlorella—G. L. Klyachko-Gurvich	834 978
Assimilation of Nitrogen in <u>Chlorella pyrenoidosa</u> Pringsheim 82T—N. G. Tomova, Z. G. Evstigneeva, and V. L. Kretovich	842 988
Utilization of Soil and Fertilizer Nutrients by Timothy and Clover in a Mixed Crop —S. V. Shishchenko	851 998
Photoperiodism and the Dynamics of Gibberellins in Plants—M. Kh. Chailakhyan and V. N. Lozhnikova	857 1006
Photoperiodic Response of Broad Bean Varieties of Different Origins—V. N. Pashchenko . . .	865 1015
Vernalization of Vegetative Buds in Strawberry Plants—A. S. Kruzhilin and Z. M. Shvedskaya	870 1022
Changes in Starch Content of Roots and Shoots of Apple Attendant on Grafting —I. F. Gavrisheva	874 1027
Biochemical Features of Seeds of Inbred and Hybrid Pumpkin Plants—B. A. Bystrov and A. P. Pavlova	879 1033
Proteins of Poppy Seeds and Their Physiological Functions—V. P. Kholodova	884 1038
Effect of Ascorbic Acid on the Water Exchange in Plants—A. A. Zemlyanukhin	893 1047
The State of the Chloroplasts in Plant Cells after Freezing and Thawing —E. I. Barskaya, G. A. Samygin, and N. M. Matveeva	900 1056

Annual Subscription: \$160

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

CONTENTS (continued)

	P A G E	ENG. RUSS.
Growth Inhibitors of Wheat-Couch Grass Hybrids Resistant and Nonresistant to Lodging —L. D. Prusakova	908	1063
Influence of 2,4-D on the Accumulation of High-Energy Phosphates in Plants of Various Classifications—T. V. Likhola	915	1070
BRIEF COMMUNICATIONS		
Effect of Gibberellin on Growth and Productivity of Fiber Flax—N. G. Gorodnii and I. G. Vyval'ko	922	1078
Effect of Gibberellic Acid on Belladonna Seeds—L. N. Bereznegovskaya	925	1081
Quantitative Determination of the Main Carotenoids in Coniferous Needles —D. A. Zakrzhevskii and A. M. Ollykainen	927	1082
A Standard Device for Mass Cultivation of Unicellular Algae—V. V. Pinevich, N. N. Verzilin, and S. I. Stepanov	929	1084
A Physiological Evaluation of the Irrigation Conditions for Soya—N. S. Goryunov and N. M. Ogryzkova	934	1090
METHODS		
Conversion of Analytical Measurements to Constitutional Nitrogen —A. A. Timofeeva	939	1095
A Method for Obtaining Chemically Pure Xanthophylls—A. P. Losev	942	1098
An Improved Method for Electrophoresis of Plant Proteins in a Polyacrylamide Gel —V. I. Safonov and M. P. Safonova	949	1105
An Apparatus for Continuous Recording of Water Absorption by Plants—G. V. Lebedev, V. G. Chuchkin, E. T. Sabinina, and V. G. Bryukvin	953	1110
Professor A. A. Tabentskii—N. I. Orlovskii and A. S. Okanenko	958	1115
AUTHOR INDEX, Volume 11, Numbers 1-6	963	
TABLES OF CONTENTS, Volume 11, Numbers 1-6	966	